

Süd-Chemie Inc.  
1600 West Hill Street  
Louisville, Kentucky 40210

PHONE: (502) 634-7373  
FAX: (502) 634-7724

CONFIDENTIAL AND PRIVILEGED  
ATTORNEY CLIENT COMMUNICATION

The information contained in this facsimile message is the property of Süd-Chemie Inc.. If you are not the intended recipient of this information, any disclosure, copying, distribution, or the taking of any action in reliance on this information, is strictly prohibited. If you have received this message in error, please notify us immediately to arrange for its return. Thank you.

TO: U.S. Patent and Trademark Office  
Office of Initial Patent Examination's Filing Receipt  
Corrections

Fax #703-746-9195

FROM: Joan L. Simunic Reg. No. 43,125

DATE:

*April 28, 2004*

PAGES: 6 in total (including cover sheet)

RE:

U.S. Application No. ~~10/758,522~~ *10/758,552*

Remarks: This facsimile is to request corrected filing receipt to include applicant Michael W. Balakos

Enclosed are:

- (1) Cover Sheet
- (2) PTO/SB/96 (Statement under 37 CRR 3.73(b))
- (3) Copy of first two pages of original application
- (4) Copy of Filing Receipt

CERTIFICATE OF FACSIMILE TRANSMISSION UNDER 37 CFR 1.8

I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office on the date shown below.

Donna Ferrill  
Person Signing

*Donna Ferrill*  
Signature

*April 28, 2004*  
Date

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
Washington, D.C., United States of America

In re Application of WAGNER, Jon

Serial No.: 10/758,552

Filed: January 15, 2004

For: CATALYST FOR PRODUCTION OF  
HYDROGEN

**FILING RECEIPT CORRECTION**

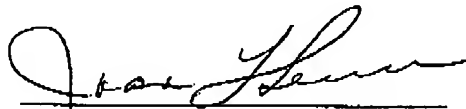
Commissioner of Patents and Trademarks  
Office of Initial Patent Examination's Filing Receipt Corrections  
Washington, D.C. 20231

Dear Sir:

In reference to the Filing Receipt 12402000 with Confirmation No 5985 for Patent Application 10/758,552 filed on January 15, 2004 entitled "CATALYST FOR PRODUCTION OF HYDROGEN" mailed on 04/20/04, please be advised the name Michael W. Balakos was not listed as an applicant(s). As did not file the declaration and assignment with the original filing of the application and we have not received the Notice to File Missing Parts, I include a copy of Form PTO/SB/96 (Statement under 37 CFR 3.73(b)) that was filed with the original application as well as the first two pages of the application.

**Michael W. Balakos, Louisville, Kentucky should be listed as an applicant**

Respectfully submitted,



Joan Simunic, Reg. No. 43,125  
Süd-Chemie Inc.  
1600 West Hill Street  
Louisville, Kentucky 40210  
(502) 634-7373  
jsimunic@sud-chemieinc.com

*add MWB not listed* Page 1 of 2

## UNITED STATES PATENT AND TRADEMARK OFFICE

APR 22 2004

UNITED STATES DEPARTMENT OF COMMERCE  
 United States Patent and Trademark Office  
 Address: COMMISSIONER FOR PATENTS  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 www.uspto.gov

APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/758,552	01/15/2004	1725	770	20031231-001		20	3

34160  
 SUD-CHEMIE INC.  
 1600 WEST HILL STREET  
 LOUISVILLE, KY 40210

CONFIRMATION NO. 5985

## FILING RECEIPT



\*OC000000012402000\*

Date Mailed: 04/20/2004

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

## Applicant(s)

Jon P. Wagner, Louisville, KY;  
 Aaron L. Wagner, Louisville, KY;  
 Yeping L. Cai, Louisville, KY;

*Michael W. Galavos, Louisville, Kentucky (KY)*

## Domestic Priority data as claimed by applicant

This application is a CIP of 10/108,814 03/28/2002

## Foreign Applications

If Required, Foreign Filing License Granted: 04/19/2004

Projected Publication Date: 07/29/2004

Non-Publication Request: No

Early Publication Request: No

## Title

Catalyst for production of hydrogen

## Preliminary Class

PTO/SB/96 (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**STATEMENT UNDER 37 CFR 3.73(b)**Applicant/Patent Owner: Jon P. Wagner; Yeping Cai; Aaron L. Wagner; Michael W. BalakosApplication No./Patent No.: N/A Filed/Issue Date: January 15, 2004Entitled: CATALYST FOR PRODUCTION OF HYDROGENSud-Chemie Inc.

(Name of Assignee)

a Delaware Corporation

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest; or
2. ☐ an assignee of less than the entire right, title and interest.  
The extent (by percentage) of its ownership interest is \_\_\_\_\_ %  
in the patent application/patent identified above by virtue of either:

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

OR

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as shown below:

1. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.
2. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.
3. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☒ Copies of assignments or other documents in the chain of title are attached.

[NOTE: A separate copy (i.e., the original assignment document or a true copy of the original document) must be submitted to Assignment Division in accordance with 37 CFR Part 3, if the assignment is to be recorded in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

January 15, 2004

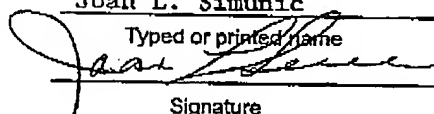
Date

502-634-7373

Telephone number

Joan L. Simunic

Typed or printed name



Signature

Officer/Corporate Counsel of  
Sud-Chemie Inc

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

**BEST AVAILABLE COPY****BEST AVAILABLE COPY**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**Washington, D.C., United States of America**

-----  
**UNITED STATES PATENT APPLICATION**

**for**

**CATALYST FOR PRODUCTION OF HYDROGEN**

**by**

**Jon P. Wagner**

**Yeping Cai**

**Aaron L. Wagner**

**Michael W. Balakos**

**BEST AVAILABLE COPY**

Page 1

Title: Catalyst for Production of Hydrogen  
Inventors: Wagner, et al.

Page 2  
Attorney Docket 20031231-001

## CATALYST FOR PRODUCTION OF HYDROGEN

### Cross-Reference to Related Applications

The present application is a continuation-in-part application related to U.S. Application Serial  
5 Number 10/108,814 filed on March 28, 2002 and incorporated herein in its entirety by reference.

### Background

The present development is a high efficiency catalyst for use in the water-gas-shift reaction  
10 suitable for production of hydrogen. The catalyst includes a Group VIII or Group IB metal and a transition metal promoter on a ceria-based support. The transition metal promoter is selected from the group consisting of rhenium, niobium, silver, manganese, vanadium, molybdenum, titanium, tungsten and a combination thereof. The support may further include gadolinium, samarium, zirconium, lithium, cesium, lanthanum, praseodymium, manganese, titanium, tungsten, neodymium or a combination thereof.

15 Large volumes of hydrogen gas are needed for a number of important chemical reactions and since the early 1940's the water-gas-shift (WGS) reaction has represented an important step in the industrial production of hydrogen. For example, the industrial scale water-gas-shift reaction is used to increase the production of hydrogen for refinery hydro-processes and for use in the production of bulk chemicals such as ammonia, methanol, and alternative hydrocarbon fuels.

20 The hydrogen gas is produced from the reaction of hydrocarbons with water or oxygen and from the reaction of carbon or carbon monoxide with water. The hydrocarbons are typically reacted with water and/or oxygen in the presence of supported nickel catalysts and at high temperatures to produce a combination of carbon oxides and hydrogen gas, commonly referred to as synthesis gas or syngas (see equations 1 - 3):



BEST AVAILABLE COPY